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PROF. SCHULTZ'S EXPERIMENTS ON DIGESTION.

[Continued from page 373.]

Exp. 11.—A distinguished individual of this city desired to know if it was true, as is generally believed, that oysters are more easily and quickly digested, if a little cheese be eaten at the same time. I was aware how difficult it would be to institute experiments upon this question upon dogs, for these animals, even after having fasted 24 hours, will never voluntarily devour oysters, so that they must always be given to them by force. However, I learnt, from Exp. 5, that when dogs have once swallowed oysters, they digest them very easily, and do not vomit them, as one would expect, after so much aversion. I therefore procured two dogs of the same size, and apparently of the same age. Both were allowed to fast 16 hours, so that in every respect they were nearly similar, except in color, for one was black and the other white. They were fed, or rather the food was forced down their throats, at 8 o'clock in the morning. The white dog received eight oysters and a small piece of bread; the black, eight oysters, a piece of bread, and about $1\frac{1}{2}$ oz. of cheese. At 11 o'clock, or three hours after, both dogs were killed. In the white one, which had received oysters and bread only, I found $8\frac{1}{2}$ drachms of chyme of the usual quality, together with four pieces of undigested oyster, which, after washing with water, weighed $4\frac{1}{2}$ drachms; the whole of the contents of the stomach, therefore, weighed 13 drachms. In the other, which had eaten cheese with the oysters, there were $12\frac{1}{2}$ drachms of very viscid chyme, and three small, cartilaginous pieces of undigested oyster, which weighed 1 drachm 2 scruples; the weight, therefore, of the contents of the stomach of this dog was 14 drachms $1\frac{1}{2}$ scruple. The dog which had received the cheese had accordingly digested in the same time, and with the same number of oysters, 2 drachms 50 grains more than the one that had been fed with oysters and bread only. The chyme, also, in the stomach of the former, was much more acid than in that of the latter; upon this point my experiments upon the degrees of acidity in the alimentary canal may be consulted.

I now made some microscopic observations upon the manner of the dissolution of the fleshy fibres in the stomach and intestines of the dog.

Exp. 12.—Raw meat obtains at the beginning of digestion, a rough, ragged appearance, which is particularly distinct under water. This raggedness is soon dissolved from the larger pieces, and may afterwards

be found in the chyme. If a piece of the same be examined under the microscope, it is found that the muscular fibres do not separate from one another lengthwise, but remain together in large pieces. In fresh meat it may be seen, that the muscular fibres are articulated, and marked with fine transverse lines upon the spaces between the articulations. They are firmly connected at the sides, and are with difficulty separated from one another lengthwise. This connection remains during digestion, and the gradual solution takes place so that the joints separate themselves into pieces which become gradually smaller, and in this condition fall apart lengthwise. At last, these pieces dissolve into very small globular bodies.

Boiled flesh is easily separated into fibres lengthwise; the articulations of the fibres, and also the fine transverse lines, may be seen here, as well as in the raw flesh; it is, however, more condensed, and the fibres are thinner, than in the raw condition, as may be seen in the fibres of boiled veal, when compared with raw veal. The first change which takes place in the boiled flesh of the mammalia in the stomach of the dog is, that the muscular fibres separate themselves from one another lengthwise. Roasted meat is not so easily separated into single fibres, and this, together with their greater hardness, appears to be the reason why it is harder to digest. In proportion as the fibres separate themselves in this manner lengthwise, they also fall into pieces transversely, and assume the appearance of having been cut with a sharp instrument. The pieces of muscle are always at first so sharply edged, and for the most part remain so during their continuance in the stomach. In the duodenum, however, their edges become rounded, and the pieces appear to dissolve gradually, like a crystal in water, till at last a very small part only is left. The chyme in which they are found has a fine granular appearance.

The solution of boiled fish in the stomach of the cat takes place somewhat differently. The muscular fibres of fish are much larger than those of the mammalia and birds; they have also fewer articulations, and are more angular. They are strongly marked with longitudinal lines. These longitudinal lines are sometimes also to be seen in the muscular fibres of the mammalia; and, on the other hand, the transverse may be seen in the fibres of fish, though both cases happen but seldom. In the stomach of the cat, the fibres of fish separate themselves lengthwise from one another, and at first appear with broken edges. The further solution, however, is quite peculiar. At first, large transverse fissures, which often go as far as the middle, arise at the sides, at which the fibres gradually fall into small pieces. The fibres now begin to dissolve at the end, and in the direction of the longitudinal lines, into sets of large globules, which gradually separate from one another, and in this condition may be afterwards found in the chyme.

EXP. 13.—After I had obtained in the manner of the solution of the mammalia fibres, a sign of the degree of perfection of the digestion, I wished to know whether the disturbance of the digestion, which I had experienced in myself from drinking coffee after meals, could be explained by experiments upon dogs. I therefore gave a dog a little coffee,

with milk, directly after he had eaten several large pieces of meat. He was killed six hours after, and I found that the digestion had been delayed longer than usual; but in the manner of the solution of the muscular fibres, I perceived no remarkable difference. I now conjectured that the coffee was absorbed from the stomach, and that afterwards the digestion proceeded in its regular course. I therefore fed a dog with meat chopped very small, and gave him a little coffee, half an hour after. I killed him four hours after, and found that the greater part of the meat had gone over into the intestines, but little or not at all altered, and also that the unchanged fibres of meat, that could therefore have been little digested, were to be seen as far as the cæcum. In these the microscope could detect but few traces of solution, although in general the fleshy fibres disappear entirely below the ilium.

I will now detail the result of my experiments upon the relative digestibility of food in the stomach, and on the movements of the stomach.

The first chief result which is obtained from my experiments upon digestion is, that vegetable food is more difficult of digestion than animal, and raw animal more difficult than boiled. Connected with the more difficult digestibility of vegetable food, is its longer continuance in the stomach and cæcum than usual. The stomachs of ruminating animals are often not empty after five days fasting; in the rabbit much food is still to be found in the stomach after a fast of 24 or 26 hours; and in carnivorous animals, pieces of potato and carrot that were devoured at the same time with meat, may be found still unaltered, although the meat be long ago digested. Even bread is less digestible than meat, though of all vegetable food the easiest.

It may be asked how the longer continuance of vegetable food in the stomach is possible, as the peristaltic motion is as strong in herbivorous and omnivorous, as in carnivorous animals. An explanation of this is afforded by the different forms of the stomach. In all herbivorous animals the small curvature of the stomach is very small, and the œsophagus is inserted near to the pylorus, while the fundus, on the other side of the œsophagus, is very much extended. The large curvature, which includes the whole of the fundus, is, on the contrary, much more developed; and the pylorus itself is short in proportion to the fundus.

In carnivorous animals, on the other hand, the small curvature of the stomach is more developed in proportion to the large; the œsophagus is inserted nearly at the fundus, and the pylorus is, in proportion to the fundus, longer than in the herbivorous class.

If, now, the nature of the peristaltic motion of the stomach be more nearly considered, it will be seen to be very different in carnivorous and herbivorous animals. The motion of the stomach may be compared to the peristaltic motion of the intestines, since it consists, like that, of alternate contractions and expansions of the circular and longitudinal muscular fibres. The only difference is, that in the intestines this motion is on all sides uniform, whilst in the stomach the motion of the small curvature is less the shorter it is, and, on the contrary, the more extensive the large curvature is, the greater will be its peristaltic motion, so that in herbivorous animals, the motion of the small curvature may

disappear almost entirely. The difference between the peristaltic motion of the stomach and that of the intestines, therefore, will be the greater the more the small curvature is shortened in proportion to the large; and the more it is expanded, and, therefore, at the same time, the pylorus lengthened, the more they will resemble each other; for the pylorus itself has nearly one uniform expansion of its muscular fibres, and, in consequence, its motion, like that of the intestines, is on all sides uniform.

The motion of the stomach may, accordingly, be considered as defective, since it takes place only upon the large curvature, while the small is nearly motionless. It is evident that this partial motion will be greatest in herbivorous animals, and that in the larger proportional development of the small curvature, and lengthening of the pylorus of carnivorous animals, the motion of the stomach will be more similar to that of the intestines.

The different kinds of motion in the stomach have a very different influence upon the motion of its contents. In herbivorous animals, when the large curvature is chiefly put in motion, the food is moved only along the course of the larger, and at the smaller is nearly motionless. If, now, the food, as is generally the case in these animals—for instance, the rabbit—as long as it remains at the fundus, forms one consistent mass, it cannot otherwise happen, than that by the continued partial forward movement of this mass by the large curvature, it will revolve upon its axis in the direction of the peristaltic motion, and be pressed into a ball which takes the form of the floor of the stomach. All the contents, therefore, will not be moved forward towards the pylorus, but only that part which is changed into chyle at the surface of the ball, while the remaining part will continue to turn round in the fundus of the stomach. In this way the food in the stomach of herbivorous animals cannot go over into the intestines before it is quite dissolved, and this motion of the stomach is perfectly correspondent with the long continuance of the food in that organ. It is, however, very different in carnivorous animals. There the motion of the stomach is, corresponding with the quicker digestion, so arranged, that the rotatory motion of the food takes place either not at all, or at most but imperfectly; for the food at the small curvature is moved, although slowly, forward towards the pylorus, and, therefore, put into a more progressive motion.

The reason, therefore, why the food continues longer in the stomach of herbivorous animals is, that through the peculiar structure and motion of the stomach it is set into a rotatory motion, whereas, the progressive motion into which the stomach of carnivorous animals sets its contents, is correspondent with its quicker digestion.

That the omnivorous class stands in the middle between these two, is self-evident.

It appears of importance to remark, that in man, in the different states of health, the one or the other kind of motion may preponderate, and that the stomach may accordingly develop itself proportionately to the larger quantity of vegetable or animal food. The fundus will extend

itself when the vegetable diet preponderates, as may be seen in old dogs which have always been fed upon vegetables. In this case the digestion will proceed more slowly, and through the rotatory motion the food will be kept longer in the stomach; in the opposite case, on the contrary, the food will be soon removed from the stomach by its preponderating progressive motion. If, now, in the usual formation of the stomach of man, indigestible vegetable food be taken, it will, like digested animal substance, be quickly removed from the stomach into the intestines, and thereby produce a disturbance of the caecal digestion.

I now proceed to speak of the act of vomiting, in the different forms of the stomach. The anti-peristaltic motion of the stomach bears the same relation, in the different forms of the stomach of carnivorous and herbivorous animals, to the evacuation of the food by vomiting, as the peristaltic motion bears to its further progress through the pylorus into the intestine. All those herbivorous animals in which a rotatory motion of the contents of the stomach takes place, either do not vomit at all, or with great difficulty; for the food is not urged by the anti-peristaltic motion towards the oesophagus, but merely set into a rotatory motion in the opposite direction, so that notwithstanding it be pressed upon all sides, it cannot be driven out. The animal vomits, therefore, with the greater difficulty, in proportion as the stomach is so formed, that its contents are set into a perfect rotatory motion, as in the rabbit, horse, &c. &c. It has been hitherto said, that horses are prevented from vomiting by the spiral valve in the oesophagus; but this valve can no more prevent the egress of the food than its ingress into the stomach, since its action in the anti-peristaltic motion is merely the reverse of that in the peristaltic, viz., that like the cardia, which is without valves, it alternately opens and shuts, and so, at every time of opening, allows the egress as well as the ingress of the food. The reason, therefore, why these animals during nausea cannot vomit, must be sought alone in the peculiar form and motion of the stomach.

On the other hand, vomiting takes place the more easily in proportion as the stomach is lengthened, and is in construction more similar to the intestines, for the food may then be driven towards the openings, either backwards or forwards, without being put into a rotatory motion. Hence, dogs and all carnivorous animals vomit without difficulty, and even in man this difference is remarkable, for children, on account of the similarity of their stomach to that of carnivorous animals, vomit easily, while, on the contrary, in older people, whose stomach resembles that of the herbivorous class, this process is more difficult.

Hillfeld (*Experimenta Quædam de Venenis*, Goettingen, p. 50) was already acquainted with the fact that rabbits could not vomit. I have myself likewise endeavored to excite vomiting in a rabbit by a dose of two grains of emetic tartar. A quarter of an hour after nausea was produced, together with great disquietude and anxiety; however, the animal did not vomit. I have found, also, by a similar experiment, that the guinea pig, which has the same kind of stomach, is not capable of this process. These phenomena do not contradict the experiments of Magendie upon the action of the abdominal muscles during vomiting;

for where vomiting is possible, the motion of the stomach gives merely the direction to its contents in which they are to be thrown out; vomiting itself is produced by the action of the diaphragm and abdominal muscles.

The rumination of ruminating animals appears to take place so that the food in the first stomach is not at all moved; or at least not in a rotatory manner, for it is generally too fluid, or too little consistent, to be able to form a round ball. However, in this form, small quantities of the chymy mass are more easily pressed into the œsophagus by the action of the diaphragm and abdominal muscles. This process has been ably explained by M. Flourens.

(To be concluded next week.)

THE OHIO LUNATIC ASYLUM.

THE following account of the Ohio Lunatic Asylum is copied from the Superintendent's first annual report, and is interesting not only for the information it contains respecting this new and promising institution, but also from the fact that it was written by one of its convalescent inmates.

"The Ohio Lunatic Asylum was built at the expense of the State, and chiefly by the labor of convicts from the Penitentiary. It is a large brick building, consisting of a centre and two wings, and is about 300 feet long. The house occupies an elevated position, in an open space of ground fronting the south, and is distant about one mile east of the city of Columbus. To me, who have been accustomed to witness large buildings in different parts of the world, it seems bare and defenceless, and its appearance is associated in my mind with the ideas of nakedness and exposure. However, it is, I believe, the most eligible situation which could have been chosen, from its uniting the double advantage of proximity to a town, with the quiet retirement and free healthy air of the country. When seen from the public road it presents an imposing spectacle, with its massy pillars and extended wings, and bears on its front and throughout its general lineaments, evident marks of its being intended for no common purpose. The centre of the edifice is reserved for the use and convenience of the officers and domestics. It contains the doctor's office, the rooms and sleeping apartments of the superintendent and his family, of the assistant physician, steward, matron, and other functionaries or dependents, whose services are considered essential to the well being of the institution. The wings, with two rear buildings, are designed for the reception of patients, and are capable of accommodating between 120 and 140 persons. The east wing is allotted for the females; the males occupy the west. Each wing contains three halls, all of which are now open and filled with patients. They are each upwards of 100 feet long, commodious and well aired, plentifully supplied with good water, and provided with a fine reading room, convenient wash room, and water closet. The sleeping rooms are comfortable and furnished with firm and portable bedsteads, with clean and suitable bedding, and every facility for health and comfort. To each hall is annexed a dining room of sufficient dimensions for accommodating 18 or 20 persons, and is fitted up with everything requisite for convenience and

utility. The rear buildings, or *lodges* as they are called, among other purposes are used for the reception of those patients whose excited and irritable state may render it necessary both on their own account, and for the safety and comfort of others, that they be kept in solitary confinement.

"The basement of the centre contains the kitchen, in which the victuals are prepared, and from which they are transported to the respective dining rooms of the patients above, on a kind of portable cupboard, in an expeditious and safe manner. The kitchen is well contrived, and provided with the necessary cooking apparatus, and its operations are so arranged and timed as to supply in the same instant with its viands the different waiters that have been handed down, and which after they have received their appropriate deposits are drawn up to their appointed places, when, as it were by a simultaneous movement, females and males, in their respective dining rooms, take their proper seats, and begin and finish their regular meals, much about the same time. The ringing of a bell announces the degree of forwardness in which these things are moving; and when all is ready, each patient proceeds to the seat which has been regularly assigned to him. The table is generally supplied with an abundance of food, and of a good quality, which the patients seem duly to appreciate by the relish with which they discuss its merits, and by the sudden havoc which is made amongst its various dishes.

"The present number of patients, of both sexes, does not, I believe, exceed one hundred and ten or twelve. The males are the most numerous. They have been all properly classified and divided among the different halls, according to the symptoms of the mental disease or nervous disorder with which they are respectively afflicted; or according to certain distinguishing features of the various complaints; or for reasons best known and understood by the superintendent. In the hall in which I am located, there are 18, who, with the inmates of the other halls, as far as I can perceive, are tended with all possible care and humanity, and no pains are spared, and no means left unemployed, which may make their situation comfortable and agreeable. There is no unnecessary restraint imposed; no tyranny exercised; no undue severity used; no unbecoming punishment inflicted. They are treated with a mild, yet becoming firmness—but should any one evince an unruly spirit, or be guilty of any glaring or mischievous infringement of the rules of propriety, or so far forget the respect which is due to himself and others, as to indulge himself in any improper prank, and act so as may be injurious to himself or to those around him, or make the atmosphere in which he moves too hot for himself and for others with whom he comes in contact, he is either confined to his own room, or perhaps conducted to the shower box, where water is admitted upon him from a cistern above, in such copious streams as may cool his blood down to a degree of temperature sufficient for enabling him to reflect on the impropriety of his conduct, and to train him for again becoming a harmless member of society.

"Medicine is served out three times daily and at stated intervals, from

small cups on which the name of the patient is labelled, suited in its nature to each particular case, and fitted to relieve pains—to compose the spirits—to stimulate the lethargic—to repress the superexcited—to purge the costive—to strengthen the weak—to whet the appetite—to fill up the emaciated form, and to produce some good effect upon all who may partake of it. In this place they do not appear to countenance the at one time commonly received opinion of having recourse to violent measures, or going to extremes in the treatment of their patients; nor to act upon the principle of almost starving and bleeding to death, the unfortunate being who is subject to mental imbecility, or bereavement of reason. Here the virtue lies in the cup, the remedy in the medicine, which if faithfully administered to any one, who has the smallest spark of reason, the slightest semblance of mind, or vestige of intellect, will, I believe, under God rekindle the almost extinguished embers of the soul, convert the shadow into some tangible mental consistence, and gradually strengthen and confirm the intellectual powers. Here, a patient as soon as he can comprehend the nature of his situation is treated as an intellectual being, is indulged in every reasonable request, has every proper wish gratified, is willingly provided with everything that may minister to his wants or amusement, and which his circumstances may require. He has access to books and newspapers, or is employed in some office or other which may conduce to his own pleasure, or be of service to the institution. He is not unfrequently allowed to walk about the premises, to take exercise in the open air, to ramble in the woods and even to attend church, though it will be understood that he is generally under the eye of a careful attendant.

"Every hall is supplied with an attendant whose office consists generally, in administering medicine, in preserving order, in seeing that the house and furniture sustain no injury, that the floor and rooms be kept perfectly clean, that every patient, who is able, make his own bed and keep his room in good order, that he wash and keep his person neat and clean, that he is regularly shaved twice a week and provided with a change of linen for his person, and sheets for his bed, at least once a week, &c. It is his duty likewise to have the table covered in due time, to draw up the waiter, carve the meat and serve out the food—to preside at the table and see that good order and decorum be observed, &c. &c. He occasionally, at the suggestion of the superintendent, will walk out and take exercise with one or more of the patients in the open air. To him is entrusted the clothing of the patients should they be so fortunate as to have more than is necessary for their daily use and wear; these he keeps in a separate room for the purpose, and serves them out as they are required. It is also his duty to lock up every one in his own room at bed time and awaken them in season in the morning, and to shower them occasionally as a means for health, or as a punishment for misconduct. It is an office for which few comparatively are well qualified, though it may require no great intellectual endowment, or mental attainments; still it needs a strong mind, a firm nerve, and a stout heart.

"The medical and surgical duties are discharged by Dr. Chambers, a

young gentleman whose urbanity and good humor favorably impress the patient in his behalf. He usually accompanies the superintendent in his regular visits through the halls, and prepares the medicines that may be prescribed. I am not personally acquainted with the steward and matron, and other functionaries connected with the institution, and of consequence can say little or nothing concerning them; but from their reputation, and the discrimination and care used in all the appointments, I am induced to believe they are persons eminently qualified for their respective stations. The whole seems to be under the direction and control of the Superintendent, who appears to manage the institution, and all that are in it, according to some definite and systematic design, and who in addition to his usual routine of professional and other duties, assembles all the official inmates of the house and as many of the convalescent patients as are considered capable of attending and conducting themselves with propriety, in the large room of the centre building, on every evening after supper, when family worship is conducted by him in a becoming and appropriate manner. On the Sabbath a plain practical discourse is read in addition to this service, which is well received and calculated to interest and instruct the audience. All these exercises are observed and engaged in with a decorum and propriety befitting the occasion; in short, so far as I have observed and am capable of judging, matters are as they should be. The internal arrangements are such as to reflect credit on those who preside over the institution, and to accord with the views and expectations of its friends.

"The patients in general are reconciled to their condition and appear happy and contented, and in the intercourse which they hold with each other, and in the manner in which they employ themselves, soon in a measure forget the endearments of kindred and of home, form new ties and contract new acquaintances. And here I cannot but admire the wisdom and goodness of God in attempering man to his condition and in enabling him to educe some enjoyment from every situation in which he may be placed; for I perceive that however foolish, absurd and inconsistent a person's own conduct and ideas may be, he can nevertheless enjoy himself at the expense of his neighbor, perceive the folly of his foibles, and derive amusement from his eccentricities; so that what betwixt singing, whistling, and dancing, reading and speechifying, the time passes merrily and gaily away, and to a person like myself who had (before I was brought here) experienced the horrors and almost solitary confinement of a county jail, the place seems a paradise in which one might live with pleasure and leave with regret.

"The institution is yet in its infancy, and evinces palpable traces of its recent existence, but it is daily multiplying its resources and extending its facilities for doing good. By the time its projected improvements are completed, with its circular walls, shady trees, neat enclosures, and other external decorations, which occasion may suggest, or taste and ingenuity may devise, it will, I think, stand as a lasting monument of the wisdom and beneficence of the legislature, and afford to many an excited and sensitive mind, a safe asylum and a pleasing retreat from the cares, the disappointments and turmoils of life—a place in which, for a while

secluded and partaking of the sanative virtues which it is calculated to impart, many may emerge, with renewed vigor and resuscitated strength, with their mental faculties so confirmed and balanced, as shall enable them to sustain with a becoming firmness the irritable vicissitudes of life, while they discharge its duties and participate in its pleasures—and a place, I hope, consecrated by the prayers, the best wishes and highest regards of those who shall drink of its healing streams. Peace be within its walls, and prosperity within its habitations.”

SMALLPOX.

[Communicated for the Boston Medical and Surgical Journal.]

Look at the journal of Dr. Huxham, from 1728 to 1748. His residence was at Plymouth, Eng., seven degrees more northerly than Boston, and in a climate like to ours. His observations extend (I believe) only to natural smallpox; and we find that during those twenty years, his monthly account of the disease may be stated as follows. In January it occurred 11 times; and 9 were favorable. In February, 13 times; all mild. In March, 12 times; all mild, except in 1741, when they were combined with fever of a bad type. In April, 15 times; all mild, excepting in 1741. In May, 12 times; all mild, except in 1741 and 1744. June, 10 times; severe in 1731, and 1741. In July, 12 times; very bad in 1730 and 1741. August, 15; bad in 1729, 1730, 1740 and 1741. Sept., 14; severe in 1729, violent in 1741. Oct., 13; very bad in 1729 and in 1742. Nov., 11 times; very bad in 1729 and 1745. Dec., 11 times; epidemic in 1729, very bad in 1734 and 1746. I believe his journal was continued, but never printed.

In Boston, records, probably nearly correct, have been handed down to us of results in 1721, '30, '52, '64 and '78. At the hospital in Mendon, 1777 and 8, from two to three hundred were inoculated; fatal cases, two adults and one infant. Thatcher's Biography tells us that Dr. Loyd, in 1764, inoculated 500 patients. Drs. Bulfinch, Jos. Warren, Gardner and Perkins, had their hospital at Point Shirley. In August, 1776, Dr. Thatcher, surgeon of Col. Whitcomb's regiment, then in Boston, inoculated 500 men; all did well, save one black. In 1776, Drs. Hayward, Rand, Davies, Aspinwall and Warren, had 2000 patients. In 1791, April, Thatcher's Journal says, "all the soldiers at the Highlands, near West Point [p. 250], with the women and children, liable to infection, had it. The old practice of previous preparation by a course of mercury and low diet, was laid aside. A single dose of jalap and calomel, or the ext. of butternut, is generally administered after inoculation." In 1782, Dr. T. inoculated 250, including women and children; their accommodations were not such as their circumstances required, and their diet was unfavorable; a considerable number were seized with putrid fever, and some of them died. At the close of the Revolutionary war, Dr. Aspinwall commenced inoculation, built a temporary hospital, and with little intermission had many patients till vaccination.

About 1788 other veterans in practice inoculated in Watertown, Newton and Lexington; and a gentleman now living, who was an active assistant, has told me an unusual number of the cases were fatal. A highly respected physician, who had a belief that mercury was injurious to all of his name, sent a very promising youth, his son, to be inoculated; but with an earnest request that no mercurial preparation should be given to him. It was not heeded, and he sunk under the disease, or the usual treatment.

When inoculation occurred in 1792, those patients under my care, who made up my first class early in the autumn, after a healthy summer, had the disease kindly; some in the following class suffered more. I think that nearly all the physicians then active in the business had loss of patients from 2 to 10 per cent.

In London Smallpox hospital, it has been reported that the patients, after being inoculated, were allowed to pass and re-pass those who lived in the same part of the city, till the symptoms of infection began to appear; and that then, and not till then, they were required to repair to the hospital, till their death or recovery. As cases of natural smallpox were soon after noticed, the hospital was their asylum also, and we are justified in apprehending that they caught it from those who had been inoculated.—By omitting to publish the number of deaths from inoculation annually, or oftener, “are we not guilty?” and do we not injure our cause? Too few of us are willing to publish the history of unfortunate cases. By withholding them do we not injure the common cause as much as we should advance it by publishing the successful result of extraordinary cases? Is it not true that some junior practitioners, losing sight of common sense, place implicit faith in the dogmata of their favorite instructors and books, and make mischief for want of that knowledge which they might derive from unsuccessful cases, held up as beacons to them? The mistakes of the most celebrated practitioners ought to be the more canvassed, as their authorities are sometimes dangerous precedents.

TIMOTHY L. JENNISON.

Cambridge, Mass., January 18, 1840.

BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, JANUARY 22, 1840.

MR. GEORGE COMBE.

WE are confident that Mr. Combe, who has recently left our city, will long be remembered with much pleasure by those who have had an opportunity of listening to his instructions. During his recent visit he delivered a course of lectures on the principles and application of phrenology, at the chapel in Phillips Place. He then gave a course of three lectures at the Odeon, on the application of phrenology to the important business of education. He was attended in both places by a numerous, highly respectable and intelligent audience. The lectures of his last course were

thought so highly of, by the friends of education, that they induced him to repeat them before the Boston Lyceum. We understand that they were also repeated at Salem, Lowell and Worcester. He also delivered an eloquent address before the members of the Boston Phrenological Society, on the evening of the anniversary of the birth of Spurzheim, which we are happy to hear is to be published at the request of the gentlemen to whom it was addressed.

There appears to be but one opinion concerning Mr. Combe's lectures, and that bears witness to the gratification and instruction derived from attending them. Though many of his auditors do not profess to be phrenologists, they all agree that the object of his labors is a highly important one, and that his manner of teaching and illustrating it, is interesting and impressive.

We were much pleased with Mr. Combe's manner of lecturing. He makes no attempt at flowery eloquence; his object is the clear and simple exposition of important practical principles; his facts are well chosen, and closely and logically connected; there is no straining to convince, no desire to make blind proselytes; he shows that he has full confidence in the strength and dignity of his subject, and his auditors cannot fail to be convinced that the great principles he teaches are not the offspring of a heated imagination, but the fruit of a close observation of nature and legitimate induction. His efforts in the cause of education are of great value, and must eventually lead to many important reforms, and every friend to the moral and intellectual improvement of his fellow beings must wish him success in the great labor in which he is engaged. His endeavors to place the arduous and responsible duties of the teacher in their true light, cannot fail to meet the approbation not only of those who are engaged in the important cause of education, but of every philanthropist.

He sets forth in a very strong light the great importance of physical education, by explaining and illustrating the truths and consequences involved in the grand principle that in this life the mind depends for its manifestation on the brain, and that consequently our mental improvement and welfare are greatly involved in the perfection of our corporeal organization. He shows that too much attention cannot be paid to the proper development and the preservation of the health and vigor of the different organs of the body.

The writings and lectures of Mr. Combe have done much to extend our knowledge of the mind, its laws and its adaptation to external things, and the clear and simple exposition he has given of them in his work on the "Constitution of Man," will be a lasting monument to his fame.

As republicans we are especially interested in the physical improvement of mankind, and the wide diffusion of moral and intellectual culture. The citizens of a republican government have the same interest in the education of the great mass of the people, that the citizens of a monarchical government have in the education of their sovereigns. With us the people are the sovereigns, and their voice is law. How important, then, is it that it should always speak the sentiments of an enlightened and sound morality. It is evident that the most efficient means to bring about this desirable result is to train the rising generation in the daily acquisition of moral and intellectual knowledge, and the practice of virtuous self-control. In this field of labor the services of Mr. Combe have been of great value, and we have no hesitation in saying that he has been the means of diffusing principles which will prove a blessing to generations yet unborn.

Sounds of the Heart.—Drs. Pennock and Moore have recently made some very interesting and important experiments upon living animals, for the purpose of settling more definitely this intricate subject. Sixteen experiments were made, by opening the cavity of the thorax after the animals were deprived of sensation by blows upon the head. The following are the results, in a condensed form.

1. The impulse is synchronous with and caused by ventricular contraction.

2. The blood is ejected from the ventricle by an approximation of its sides; the heart, during systole, performing a spiral movement, and becoming elongated.

3. The ventricle contracts and auricle dilates simultaneously—occupying about one half of the whole time required for systole, diastole and repose. The diastole of the ventricle succeeds immediately upon the termination of the systole; and at the same time the auricle allows, without evident muscular contraction, a part of its blood to run into the ventricle. This occupies about one fourth. During the other fourth, the ventricles rest; and towards the end of this period the auricles contract actively with a short motion, which is propagated to the ventricles, and systole begins.

4. Perfect repose of ventricles, from end of diastole to the beginning of systole—their cavities being full.

5. The sounds are caused by the motions of the heart, and of its contents, and not by the impulse upon the walls of the chest, according to Magendie's theory.

6. Sounds most distinct when the muscle is thin.

7. The first sound may be caused by a combination of the contraction of the auricles, the motions of the auriculo-ventricular valves, the rush of blood through the ventricles, and the sound of muscular contraction.

8. The second is caused exclusively by the motion of the semilunar valves of the aorta and pulmonary artery, chiefly of the former. It is synchronous with the diastole of the ventricle.

From these experiments our readers will perceive that our knowledge of the morbid phenomena are probably destined to remain considerably embarrassed by the multitude of data upon which the first sound of the heart depends. The second sound, however, is more certain, and invaluable results may be obtained by examining particularly for any deviation of it from health.

It will be perceived, likewise, that the experiments of Dr. Pennock confirm, entirely, the results laid before the British Association. For a more thorough examination of them we refer to No. 44 of the Philadelphia Medical Examiner.

*Pneumonia of Children.**—Chap. V. "In a large majority of cases, pneumonia supervenes in the course of a prior affection, especially in children *æt.* 2—5 years. Of 40 such patients, only three were in health at commencement of pneumonia. Of 20, *æt.* 6—15 years, only six were then in health; the others had measles, smallpox, typhoid fever, whooping cough, gangrene of the mouth, &c.

"Of 80 patients, 40 were *æt.* 2—5 years; 20 were *æt.* 5—15: the pro-

* *Treatise on Pneumonia of Children*, by MM. Billiet and Barthes, resident Pupils in the Hospital for Sick Children, Paris; founded on 94 cases observed in that hospital in 1857. Translated by E. Parkman, M.D., &c., of Boston, for Druggan's American Medical Library.

portion is even greater, as beds for the older children and admissions there are much more numerous. Mr. Haese's Pathological Anatomy, in 108 dissections, presents 71 pneumonias of children *æt.* 2—5 years, and 37 in children *æt.* 6—15.

"In children *æt.* 2—4 years, cough always appeared at least a week before inflammation decidedly commenced. In many cases error is easy; we ought to suspend diagnosis till after some days' examination.

"Pneumonia is the more dangerous, in proportion to patients' youth, as also appears by researches of MM. Valleix and Vernais at the Foundling Hospital. The first species, our predecessors and we, found always fatal, except one case. Of 81 secondary cases, 77 were fatal. At an advanced period of the malady, when smallness of pulse has been noted, death has not failed in a few hours, or two days at utmost. Cessation of cough, chilliness of extremities, purpleness of face, coincide, ordinarily, with this smallness.

"Although of some advantage in idiopathic or primitive pneumonia, the utility of bleeding appears restrained within very narrow limits. In complicated pneumonia (which is nearly always fatal), it fails to produce any sensible modification. M. Blache's observations on pneumonia complicating whooping cough, M. Baudin's on the disease after measles, and many observations in journals, show immense proportion of mortality, and complete inefficacy of bleeding.—M. Becquerel, who observed in a service where bleeding was solely employed, saw no recovery in pneumonia complicating a pre-existing affection.

"Many cases are published, entitled 'cure by tartar emetic.' In nearly all, bleeding was employed in concert.—The cases published of employment of antimonial powder (*w. ox. of antim.*) in pneumonia of children, do not contradict our results. In many we discover no influence of the antimony on the pulse, respiration or inflammation; in many, where its influence is vaunted, it seems impossible to decide whether amelioration was due to antimony or nature.

"The first signs of amelioration appear in nearly all cases from 7th to 9th day, whatever be the treatment. This proves that pneumonia has a period of increase, which it must fulfil; that medications are powerless in arresting its ascent. Where no treatment has been employed, amelioration has not been less manifest at this period."

Cold Plague of Texas.—A writer, residing at Houston, under date of Oct. 31st, gives a graphic account of the late epidemic at Texas, which proved extremely fatal. The mortality was greatest among the dissipated and worthless. Many, however, who deserved a better fate, died for want of nursing and the common comforts of life. In the month of September, the deaths were supposed to have averaged, in Houston, four or five a day, in a population of 12 or 1500. But very few females died—their habits being generally better than those of an equal number of men, gives them a better hold on life during the prevalence of any epidemic. Children almost wholly escaped. The disease was thought to differ essentially from the yellow fever. In the most marked cases, there was but little febrile excitement. The seat of the disease seemed to be the stomach, which would not retain medicine. By common consent the malady was called the *cold plague*. Dr. Edmund R. Anderson, an estimable man and physician, died a martyr to extreme professional zeal. The writer considers Texas as healthful a country as any in the same latitude, in any part of the globe.

Dr. Gallup's Medical Writings.—It must be gratifying to this gentleman to have his writings sought for, as they are beginning to be, by those who appreciate the labor through which he has passed in collecting the materials of three excellent volumes. It is thought by some, without any intention of undervaluing the last work, that his history of the spotted fever, written about twenty years ago, will hereafter be considered the most prominent and important of anything this veteran physician and medical philosopher has ever given to the public. We hear that Dr. Gallup is now in feeble health.

Dr. M. R. Fletcher's Truss.—A diploma was granted by the Charitable Mechanic Association to Dr. Fletcher, for his ingenuity in the construction of the truss, now so extensively known as his invention. The committee perfectly coincide with some of the most eminent surgeons of New England, in believing it a superior instrument.

Medical Miscellany.—Cases of smallpox have appeared at Chicago, and some alarm created.—The epidemic which proved so fatal for some time at Tampa Bay, has wholly subsided.—The Censors of the first medical district, in this State, will meet at No. 29 Winter street, on Wednesday, January 29th, for the transaction of business.—The National Medical Convention, which met at the city of Washington on the first of January, referred the subject of the revision and re-publication of the United States' Pharmacopœia, to a select committee. Some other business was transacted.—Dr. Thomas Williams, of the naval hospital, at Norfolk, has been appointed fleet surgeon of the Mediterranean squadron, in place of Dr. Ticknor, who resigned.—Mention is made of an unusual mortality in the New York Almshouse.—Smallpox has appeared on board the ship Independence, just arrived at Montevideo.—Dr. G. W. Cook has been elected Mayor of Hudson, N. Y.—Quite an excitement has existed at Worthington, Ohio, in consequence of one or more dead bodies having been taken from their graves, as was suspected, by some one in the employ of the Reformed Medical College (so called) in that place.—An appropriation of \$22,000, for the establishment of a State Lunatic Asylum, recently made by the Legislature of Pennsylvania, has been vetoed by the Governor, on the ground that the State treasury is in too low a condition to warrant the expense.—The number of cases reported by the physicians of the Lowell Dispensary, as having been under treatment during the last year, is 94, of whom two thirds were foreigners. Recovered, 56; died, 14.

TO CORRESPONDENTS.—The communications of Drs. Flint, Barker and Clough, were duly received.

MARRIED.—In Braintree, Dr. John A. Cummings, of Boston, to Miss Sarah E. Thayer.

DIED.—In Lewes, Del., Dr. Simon K. Wilson, 44.

Whole number of deaths in Boston for the week ending Jan. 18, 38. Males, 51—females, 17. Of consumption, 6—smallpox, 4—rheumatic fever, 1—dropsy on the brain, 2—dropsy, 4—lung fever, 5—croup, 2—debility, 3—teething, 1—old age, 1—infantile, 2—child-bed, 2—sits, 1—inflammation of the bowels, 1—inflammation of the lungs, 1.

THOMPSON'S APPARATUS FOR THE CURE OF PROLAPSUS UTERI, &c. In offering his instrument to the faculty, Dr. Thompson would call their attention to the following statements, and request all interested to examine the article in the hands of his agents

Extract of a letter from the late Professor Eberle, to the Hon. H. L. Ellsworth, Commissioner of Patents, &c., dated

Cincinnati, May 11, 1857.—"I have carefully examined the new *Uterine Truss* invented by Dr. Robert Thompson, of Columbus, in this State, and I can confidently declare, that it is unquestionably the most perfect and useful instrument of the kind, that has ever been offered to the public. It differs essentially in its construction, from the *Uterine Truss* contrived by Dr. Hull, and is, in all respects, a far superior instrument."

See, also, "The Western Journal of Medical and Physical Sciences."

Professor McClelland, of Jefferson Medical College, Philadelphia, Pa., declared, upon examining the instrument, that "every word of Dr. Eberle's opinion is true." Professors Channing and Hayward, of Boston, expressed like opinions.

Extract of a letter from Prof. Sewall to Prof. Bigelow, dated
18th May, 1857.—"Dr. Thompson will be pleased to show you a *Uterine Truss* which he has invented, of very superior structure to anything we have."

Extract of a letter from Prof. Peirce to Dr. Thompson, dated
Columbus, Jan. 10, 1858.—"Your instrument, it appears to me, is formed on principles more enlarged, than those hitherto recommended for the same end, and mechanically different. I would cheerfully recommend its adoption by our professional brethren generally."

For sale in Boston by Theodore Metcalf, apothecary, No. 33 Tremont Row. Price, \$15.

June 13—1y

VERMONT MEDICAL COLLEGE.

THE next annual course of Lectures at this Institution, will commence on the second Thursday of March next, and continue thirteen weeks.

Chemistry and Materia Medica, by DAVID PALMER, M.D.
Theory and Practice of Medicine and Obstetrics, by HENRY H. CHILDS, M.D.
General and Special Anatomy and Physiology, by ROBERT WATTS, JR., M.D.
Principles and Practice of Surgery, by GILMAN KIRKALL, M.D.
Medical Jurisprudence, by HON. JACOB COLLAMER, A.M.
Pathological Anatomy, by ROBERT WATTS, JR., M.D.
Demonstrator of Anatomy, SAMUEL W. TRAYNE, JR., M.D.

Terms for the course, \$50.—Graduation, \$10.—For those who have attended two courses, but do not graduate, \$10. All the above expenses to be paid in advance, or secured by note, with a satisfactory endorser, to David Peirce, Esq., Treasurer of the Institution. Board may always be obtained in this village, on reasonable terms.

The new edifice, with large, convenient, and comfortable lecture rooms, will be in readiness for the reception of the class the next term.

By order of the Board of Trustees,
Woodstock, Vt., Jan. 3, 1849. J. S.—optm15 N. WILLIAMS, Secretary.

TREMONT-STREET MEDICAL SCHOOL.

THE subscribers, at their private medical school in Tremont street, offer the following facilities to professional students.

A daily attendance at the Massachusetts General Hospital, and at the Eye and Ear Infirmary, with frequent opportunities of seeing cases, and surgical operations, in private practice, and in the public dispensary. Arrangements have been made for affording obstetric practice to a considerable extent under the superintendence of the instructors.

A regular system of instruction by means of lectures and examinations in all the branches of the profession will be pursued throughout the year.

ANATOMY.—Recitations heard by Drs. Reynolds and Holmes. A course of lectures on Surgical Anatomy by Dr. Holmes. Demonstrations and Dissections.

SURGERY.—A complete course of eighty lectures, including diseases of the Eye and Ear, by Dr. Reynolds.

CHEMISTRY.—Recitations and instructions by Dr. Storer.

PHYSIOLOGY AND PATHOLOGY.—Lectures and recitations by Dr. Holmes, including a special course on Auscultation and Percussion.

MIDWIFERY.—Lectures and recitations by Dr. Storer, with practical instruction on the application of obstetrical instruments upon the machine or model.

THEORY AND PRACTICE OF MEDICINE, CLINICAL INSTRUCTION, AND MATERIA MEDICA, under the superintendence of Dr. Bigelow.

Boston, Nov. 30, 1839.

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JACOB BIGELOW,
EDWARD REYNOLDS,
D. HUMPHREYS STORER,
OLIVER W. HOLMES.

VACCINE VIRUS.

PHYSICIANS in any section of the United States can procure ten quills charged with **True Vaccine Virus**, by return mail, on addressing the Editor of the Boston Medical and Surgical Journal, enclosing one dollar, *post paid*, without which no letter will be taken from the post office. June 19

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